

CLAIMS

1. A method of providing gas to a system which separates from a pressurised supply gas, product gas the method including conditioning the supply gas by both cooling and drying the gas.
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2. A method according to claim 1 wherein the supply gas is cooled sufficiently to remove moisture from the supply gas by condensation.
- 10 3. A method according to claim 2 wherein a gas supply is separated into system gas, and supply gas, and the supply gas is fed to a condenser where the supply gas is cooled by a coolant and moisture is removed from the supply gas to dry the supply gas, and the system gas is passed to a cooling device where the system gas is cooled, and then the cooled system gas is used as the coolant
15 in the condenser.
4. A method according to claim 3 wherein the cooling device is a turbine over which the system gas is expanded.
- 20 5. A method according to claim 4 wherein the gas supply is hot highly pressurised gas and energy recovered from the hot pressurised gas by the turbine is utilised by the conditioning apparatus to drive a compressor to compress and warm the system gas after the system gas has been used as a coolant in the condenser.
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6. A method according to any one of the preceding claims wherein the supply gas, after drying, is further conditioned in a heat exchanger to bring the temperature of the supply gas to within an optimal operating range for the downstream separating system.

7. A method according to claim 6 wherein the further conditioning includes warming the supply gas with a warming fluid.
- 5 8. A method according to claim 7 where dependant upon claim 5 wherein the warming fluid is compressed system gas from the compressor driven by the turbine.
9. A method according to claim 6 or claim 7 or claim 8 which includes
10 sensing the temperature of the supply gas downstream of the heat exchanger, to provide an input to a controller which opens and closes a valve in response, to control the flow of the warming fluid to the heat exchanger.
10. A method according to any one of claims 3 to 9 where dependant upon
15 claim 3 and claim 6 which includes compressing the expanded system gas after using the expanded system gas as a coolant in the condenser, warming the supply gas after drying, in the heat exchanger with the compressed system gas, and then exhausting the system gas.
- 20 11. A method according to any one of the preceding claims wherein the method includes utilising ambient air as a coolant in a pre-cooler heat exchanger, to cool the gas supply prior to conditioning the supply gas.
12. A method of providing gas substantially as hereinbefore described with
25 reference to the accompanying drawing.
13. In combination a system which separates from supply gas, product gas, and a conditioning apparatus to cool the supply gas for use in the separating

system, the conditioning system including a condenser in which the supply gas is cooled and dried.

14. A combination according to claim 13 having any of the features of the apparatus described for use in the method of claims 1 to 12.

15. A combination a system which separates from supply gas, product gas, and a conditioning apparatus to cool the supply gas for use in the separating system.

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16. An aircraft having a combination of a system which separates from supply gas, product gas, and a conditioning apparatus to cool the supply gas for use in the separating system according to claim 13 or claim 14 or claim 15.

15 17. Any novel feature or novel combination of features described herein and/or as shown in the accompanying drawing.